

Claims

What is claimed is:

- 1 1. A method for converting an alternating current (AC) input to a direct current
2 (DC) output, the DC output providing power to a load, the method comprising:
3 receiving the alternative current (AC) input;
4 receiving a first feedback signal indicative of a target voltage required
5 by the load;
6 receiving a second feedback signal indicative of the DC output; and
7 generating the DC output responsive to the first and second feedback
8 signals, wherein the DC output is maintained within a predefined range of the
9 target voltage.

- 1 2. The method of claim 1, wherein a difference between the DC output and the
2 target voltage is always positive while providing a charge to the load.

- 1 3. The method of claim 1, wherein the second DC output provides power to the
2 load, wherein the load is a battery.

- 1 4. The method of claim 3, wherein the DC output is suitable to charge the
2 battery.

- 1 5. The method of claim 1, wherein upon a loss of the first feedback signal the
2 second DC output is maintained to a predefined voltage.

- 1 6. The method of claim 5, wherein the predefined voltage is equal to a previous
2 voltage value of the DC output measured instantly prior to the loss of the first
3 feedback signal.

- 1 7. The method of claim 1, wherein the predefined range includes a minimum
2 value slightly above 100% of the target voltage and a maximum value slightly
3 below 125% of the target voltage.
- 1 8. The method of claim 1, wherein the first feedback signal is received from the
2 load.
- 1 9. The method of claim 1, wherein the first feedback signal is received from a
2 controller operable to control the load.
- 1 10. The method of claim 1, wherein the first feedback signal is received as a
2 single digital signal, a pulse width modulation (PWM) signal, an analog signal,
3 a digital signal superimposed on another analog signal, or an SMBus signal.
- 1 11. The method of claim 1, wherein the DC output is maintained at a predefined
2 voltage upon completion of providing a charge to the load.
- 1 12. An integrated alternating current (AC) to direct current (DC) adapter
2 comprising:
3 a rectifier module operable to receive an AC input and generate a first
4 DC output;
5 a buck converter module operable to receive the first DC output and
6 generate a second DC output responsive to a control signal; and
7 a controller module operable to receive a first feedback signal input
8 indicative of a target voltage required by a load and a second feedback signal
9 input indicative of the second DC output, the controller adjusting the control
10 signal responsive to the first and second feedback signal inputs, the adjusting
11 of the control signal causing the buck converter module to maintain the

- 12 second DC output to be within a predefined range of the target voltage.
- 1 13. The adapter of claim 12, wherein a difference between the second DC output
2 and the target voltage is always positive.
- 1 14. The adapter of claim 12, wherein the second DC output provides power to the
2 load, wherein the load is a battery.
- 1 15. The adapter of claim 14, wherein the second DC output is suitable to charge
2 the battery.
- 1 16. The adapter of claim 12, wherein upon a loss of the first feedback signal the
2 controller generates the control signal to maintain the second DC output to a
3 predefined voltage.
- 1 17. The adapter of claim 16, wherein the predefined voltage is equal to a
2 previous voltage value of the second DC output measured instantly prior to
3 the loss of the first feedback signal.
- 1 18. The adapter of claim 12, wherein the predefined range includes a minimum
2 value slightly above 100% of the target voltage and a maximum value slightly
3 below 125% of the target voltage.
- 1 19. The adapter of claim 12, wherein the first feedback signal is received from
2 the load.
- 1 20. The adapter of claim 12, wherein the first feedback signal is received from a
2 another controller operable to control the load.

1 21. The adapter of claim 12, wherein the first feedback signal is received as a
2 single digital signal, a pulse width modulation (PWM) signal, an analog signal,
3 a digital signal superimposed on another analog signal, or an SMBus signal.

1 22. An information handling system comprising:

2 a processor;

3 a system bus;

4 a memory coupled to the processor through the system bus; and

5 a power supply system operable to provide power to the processor, the
6 bus and the memory, the power supply system being connectable to an
7 alternating current (AC) power source, wherein the power supply system
8 includes:

9 a rectifier module operable to receive the AC input and
10 generate a first direct current (DC) output;

11 a buck converter module operable to receive the first DC output
12 and generate a second DC output responsive to a control signal; and

13 a controller module operable to receive a first feedback signal
14 input indicative of a target voltage required by the processor and a
15 second feedback signal input indicative of the second DC output, the
16 controller adjusting the control signal responsive to the first and
17 second feedback signal inputs, the adjusting of the control signal
18 causing the buck converter module to maintain the second DC output
19 to be within a predefined range of the target voltage.